New records of *Synaphobranchus* (Anguilliformes, Synaphobranchidae) from off the Azores (eastern Atlantic Ocean)

by

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RÉSUMÉ. - Nouveaux signalements de *Synaphobranchus* (Anguilliformes, Synaphobranchidae) aux Açores (océan Atlantique oriental).

Synaphobranchus affinis et *S. brevidorsalis* sont signalés pour la première fois au large des Açores, et la présence de *S. kaupii* est confirmée. Des données morphométriques et méristiques des spécimens étudiés sont présentées.

Key words. - Synaphobranchidae - *Synaphobranchus* - ANE - Azores - Deep-sea fishes - New records.

The genus *Synaphobran*chus comprises four recognized species, two of which have been recorded from the central and eastern North Atlantic Ocean: *S. kaupii* Johnson, 1862 and *S. affinis* Günther, 1877 (Sulak and Shcherbachev, 1997). To date, *S. kaupii* was the only species of this genus recorded from the waters of Azores (Vaillant, 1888).

During a series of captures with bottom longlines and baited fish traps at the Menez Gwen, Lucky Strike and Mount Saldanha hydrothermal vent fields in the Mid-Atlantic Ridge southwest of the Azores (Fig. 1), several *Synaphobranchus* were caught and deposited in the Museu Municipal do Funchal (História Natural) (MMF). They were first identified as *S. kaupii*, a species already present in the Funchal Museum's collection, namely from the 1967 Seamounts Cruises of the R/V "Meteor" in the Northeast Atlantic (Maul, 1976). However, a detailed study of these collections led to the discovery of two other species, which were unreported hitherto.

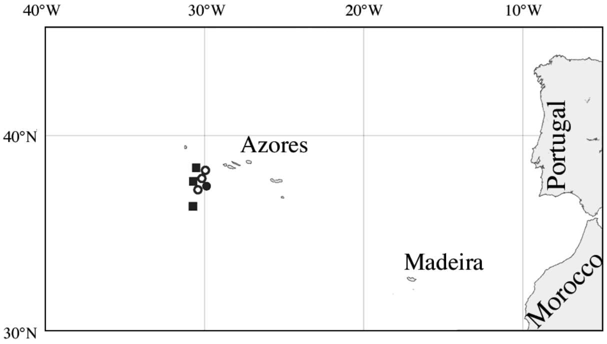

Figure 1. - Capture sites of specimens. ● *Synaphobranchus kaupii*; ○ *S. affinis*; ■ *S. brevidorsalis*. *[Localisation des lieux de capture].*

MATERIAL AND METHODS

Sixteen specimens of *Synaphobranchus* spp. from off the archipelago of the Azores were studied morphologically. Eight point-to-point measurements (total length (TL); predorsal length (PD); preanal length (PA); head length (HL); eye diameter; snout length; jaw length and length of pectoral fin (PL)) were made to the millimetre (mm) following Saldanha and Merrett (1982). Fifteen specimens were X-rayed and total vertebral counts made. All specimens studied are deposited in the collections of MMF.

All but one specimen were collected with bottom longlines deployed with R/V "Arquipélago" in 2000 and 2001.

RESULTS

Of the sixteen specimens observed, six evidently belong to *S. kaupii*, six are *S. affinis* and four are *S. brevidorsalis*. All specimens studied agree well with the descriptions and data given by Karrer (1982), Robins and Robins (1989) and Sulak and Shcherbachev (1997) for the respective species, except for *S. brevidorsalis* (see Remarks). Meristic and morphometric data of the specimens observed are given in table I.

Synaphobranchus kaupii Johnson, 1862

Material examined. - MMF 26868, TL 591 mm, Lucky Strike, 37º18'N-32º16'W, 1720 m, 10 Jun. 1994, baited fish trap. - MMF 33581, TL 540 mm, 33584, TL 588 mm, 33586, TL 675 mm, 33587, TL 596 mm, Lucky Strike, 37º18'N-32º16'W, 1600 m, 16 Jul. 2000, bottom longline. - MMF 34234, TL 619 mm, Lucky Strike, 37º18'N-32º16'W, 1600 m, 22 Sept. 2001, bottom longline.

Distribution. - *Synaphobranchus kaupii* has been recorded mostly in the northern hemisphere, on both sides of the Atlantic and off Hawaii and off Japan in the Pacific Ocean (Wilson et al., 1985; Sulak and Shcherbachev, 1997). South of the Equator it has been recorded from a few locations in the Atlantic and Indian Oceans (see Sulak and Shcherbachev (1997) for a detailed distribution map). It has been firstly recorded from the Azores by Vaillant (1888).

Synaphobranchus affinis Günther, 1877

Material examined. - MMF 33583, 33585, 33588 (specimens damaged), Lucky Strike, 37º18'N-32º16'W, 1600 m, 16 Jul. 2000, bottom longline. - MMF 34231, TL 676 mm, Lucky Strike, 37º18'N-32º16'W, 1700 m, 22 Sept. 2001, bottom longline. - MMF

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Table I. - Meristic and morphometric data for *Synaphobranchus* spp. (Number of measured specimens in parenthesis). *[Données méristiques et morphométriques des* Synaphobranchus *spp. (Nombre de spécimens mesurés entre parenthèses)].*

	S. kaupii	*S. affinis*	*S. brevidorsalis*
TL	540-675 (6)	545-676 (4)	728-1030 (4)
HL (%TL)	12.2-13.7 (5)	13.0-13.8 (4)	12.7-13.7 (3)
PD (%TL)	35.2-40.6 (5)	32.0-36.1 (4)	46.2-49.4 (3)
PA (%TL)	26.7-30.8 (5)	29.2-31.7 (4)	31.1-36.5 (3)
PL (%TL)	3.9-5.4 (5)	4.4-5.9 (4)	4.2-5.3 (4)
Snout (%HL)	27.8-33.3 (5)	27.5-30.7 (4)	26.2-27.3 (4)
Jaw (%HL)	48.2-65.0 (5)	41.9-54.1 (4)	49.6-55.7 (4)
Eye diameter (%HL)	11.1-13.5 (5)	9.9-13.5 (4)	10.7-12.7 (3)
(PD-PA)/PL	1.22-3.28 (5)	0.16-0.97 (4)	2.47-4.32 (4)
Total vertebrae	145-152 (6)	135-150 (6)	132-133 (3)

34232, TL 545 mm, Intermediate Point, Mid-Atlantic Ridge, 37º44’N-32º05’W, 950 m, 24 Sept. 2001, bottom longline. - MMF 34233, TL 547 mm, Menez Gwen, 37º50’N-31º31’W, 900 m, 21 Sept. 2001, bottom longline.

Distribution. - *S. affinis* has been recorded from the Atlantic, Pacific and Indian Oceans (see Sulak and Shcherbachev (1997) for a detailed distribution map). It is recorded for the first time here from the Azores (Fig. 1).

Remarks. - Amongst our material, the origin of dorsal fin in *S. affinis* is always closer to the origin of anal fin than it is in *S. kaupii*, which can be a useful character to separate the two species, as it has been already pointed out by Sulak and Shcherbachev (1997).

***Synaphobranchus brevidorsalis* Günther, 1877**

Material examined. - MMF 34228, TL 804 mm, Menez Gwen 37º50’N-31º31’W, 900 m, 24 Sept. 2001, bottom longline. - MMF 34229, TL 814 mm, 34230, TL 728 mm, Lucky Strike 37º18’N-32º16’W, 1700 m, 22 Sept. 2001, bottom longline. - MMF 34707, TL 1030 mm, Mount Saldanha, Mid-Atlantic Ridge, 36º33’N-33º28’W, 2300 m, 12 Aug. 2002, bottom longline.

Distribution. - *S. brevidorsalis* has been recorded from the Atlantic, Pacific and Indian Oceans (see Sulak and Shcherbachev (1997) for a detailed distribution map). It is recorded for the first time here from south of the Azores, at the Mid-Atlantic Ridge, which is the eastern-most record in the North Atlantic Ocean (Fig. 1).

Remarks. - Meristic and morphometric data of the specimens observed are given in table I. The origin of dorsal fin in relation to anus (almost at midpoint of body), the absence of scales on the interradial membrane of anal fin, as well as other distinctive characters given by Robins and Robins (1989) and Sulak and Shcherbachev (1997), such as the pattern of body scales and the teeth in the premaxillary-ethmoid complex allowed us to easily identify our specimens. However, it is worthwhile pointing out in, that the pre-anal, pre-dorsal and snout lengths and total number of vertebrae in our specimens (Tab. I) differ to some extent from the measurements and counts given for specimens from the Mozambique Channel (Karrer, 1982) and from Réunion Island (Quéro and Saldanha, 1995). A careful examination of all specimens collected worldwide should be made in order to determine morphometric and meristic variations in this species better (E. Karmovskaya, *in litt*., 2005).

Amongst our *Synaphobranchus* material, the largest specimens caught belong to this species.

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